

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**TITLE: LIGHT-TUBE RUNNING BOARD LIGHTING**

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## LIGHT-TUBE RUNNING BOARD LIGHTING

### BACKGROUND OF THE INVENTION

#### FIELD OF THE INVENTION

The present invention relates to lights for a running board of a vehicle and, more particularly, to a light tube for directly and uniformly lighting a stepping surface of the running board and a ground surface below the running board.

### **BACKGROUND AND SUMMARY OF THE INVENTION**

Vehicle running boards customarily provide an intermediate step to aid in the entry or exit of the vehicle. These running boards typically extend from the rear of the front wheel well to either the end of the front doors or to the front of the rear wheel well. An example of such a running board can be seen in U.S. Patent No. 5,382,035.

Lighting assemblies for illuminating vehicle running boards have previously been associated with running boards for both decorative and safety purposes. Typically, such lighting assemblies employ standard incandescent bulbs and lenses to illuminate the running board from either end of the running board. This method causes increased glare to be cast upon the running board, and also causes light to shine in the user's eyes.

Another example of a typical lighting assembly employs a strip of small incandescent bulbs to cast light upon the running board. However, this method does

not allow for easy replacement of expired bulbs, nor does it provide for both ground lighting and step lighting from a single light source.

It is therefore desirable to provide a single lighting assembly capable of lighting a stepping surface of a running board, in addition to a ground surface below the running board. It is further desirable to provide a lighting assembly capable of lighting the stepping surface of the running board while minimizing glare and stray light, which may enter the eyes of the user.

According to the preferred embodiment of the present invention, a running board light assembly is provided having a light source emitting light into a light tube extending along the length of a running board. This method allows the light from the light tube to be cast directly and uniformly upon the stepping surface of the running board to improve safety and aesthetics. The light from the light tube may also be cast upon the ground below the running board by simply bending the end of the light tube downward or by tapping into the light source.

Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood however that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

## BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

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Figure 1 is a perspective view of the lighting assembly of the present invention attached to a running board of a vehicle.

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Figure 2 is a partial cross-sectional view taken along line 2-2 of Figure 1.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

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The following description of the preferred embodiments is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

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Referring to Figure 1, a running board light assembly 10 in accordance with the teachings of the present invention is shown attached to a running board 12 of a vehicle 14. Running board light assembly 10 is adaptable to be attached to a variety of different vehicles including trucks and vans, among others. Running board light assembly 10 is designed to extend longitudinally from generally the front of a front door 16 to either the end of front door 16 (two-door vehicles) or the rear of a rear door 18 (four-door vehicles). It is anticipated that running board light assembly 10 can extend the entire length of running board 12 or may be coupled with other lighting assemblies for varying aesthetic effects.

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Still referring to Figure 1, running board light assembly 10 includes a light tube 20 and a light source 22. Light tube 20 is preferably made of a hard acrylic material. However, soft acrylic and fiber-optic material have also been found to possess favorable qualities. As best seen in Figure 2, light tube 20 includes a

translucent or transparent outer portion 24 along its length. Translucent or transparent outer portion 24 allows light transmitted through light tube 20 by light source 22 to be directly and uniformly cast upon a stepping surface 26 of running board 12.

5 It is anticipated that running board light assembly 10 may be fastened to running board 12 after running board 12 is attached to vehicle 14. On the other hand, running board light assembly 10 may be integrated into the design and manufacture of running board 12 to provide an improved aesthetic value.

10 Light source 22 of running board light assembly 10 is preferably a single incandescent bulb disposed on an end of light tube 20. However, other common light sources, such as light emitting diodes (LED) or halogen bulbs, may be used. Referring to Figures 1 and 2, light source 22 is installed in an end of light tube 20 such that light source 22 is in communication with an interior volume 28 of light tube 20. Interior volume 28 carries the light and reflects it through translucent or 15 transparent outer portion 24.

Using this method, various advantages are realized. First, the transmitting of light through interior volume 28 allows the light to be more efficiently directed over stepping surface 26. Therefore, only a single light source is required to illuminate an entire area of running board 12. Second, the ground 30 beneath running board 12 20 may be illuminated by directing an end of light tube 20 downward, as shown in phantom as Option A in Figure 1. Similarly, light source 22 may be tapped to provide light along the ground 30 below running board 12, as shown as Option B in Figures 1 (hidden) and 2 (in phantom). The lighting of the ground in this manner

allows for improved safety and aesthetic value. Third, the use of translucent or transparent outer portion **24** minimizes glare and directs light away from the eyes of the user, thereby allowing easier entry and exit of the vehicle. Fourth, the present invention allows a light source **22'** to be disposed in an end-cap **32**, as shown in phantom in Figure 1, or other feature of running board **12** to minimize the environmental effects on light source **22'**.

It is anticipated that running board light assembly **10** may be used in various applications, such as to illuminate rear bumper steps, trailer platforms, or similar stepping surfaces.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.